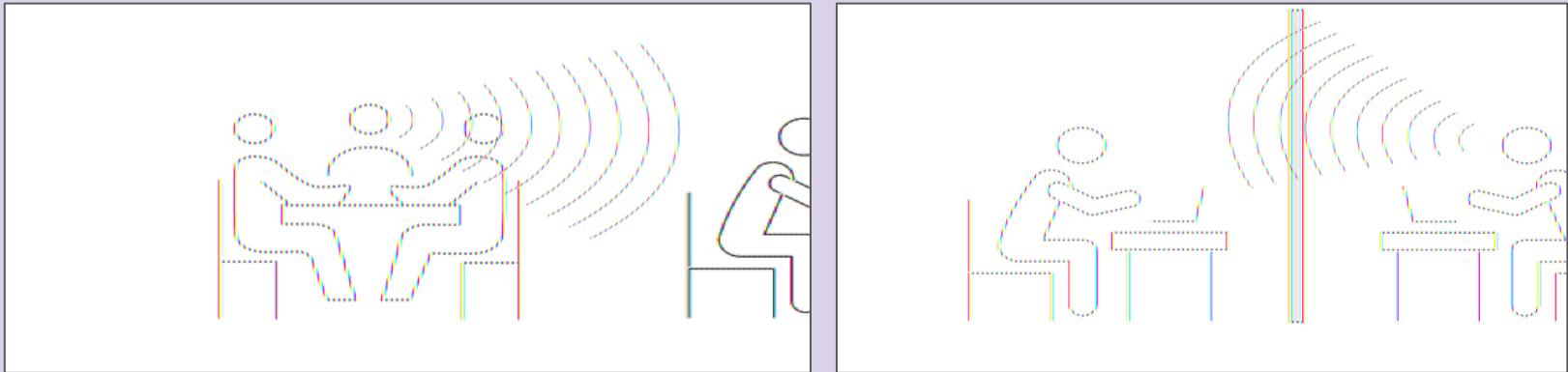


Figure 1. Box plots for satisfaction with parameters assessed in the CBE occupant satisfaction survey. The extremities of the boxes are the 25th and 75th percentiles. Bold vertical lines indicate median values and dots represent mean values. For all the parameters the minimum and maximum values are equal respectively -3 (very dissatisfied) and 3 (very satisfied).

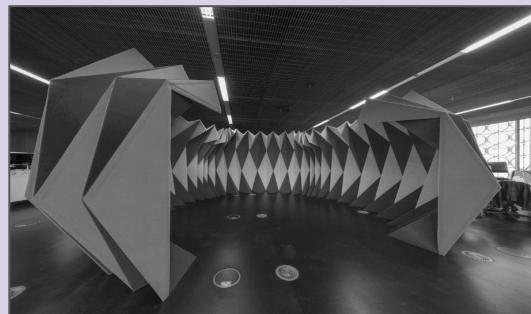
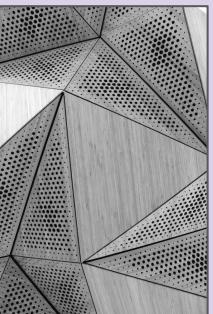
Problem



Acoustics are the number one source of occupant dissatisfaction in office settings.

Current office pod products on market do not fully address acoustic concerns in satisfying ways.

Market Analysis



Scale exploration

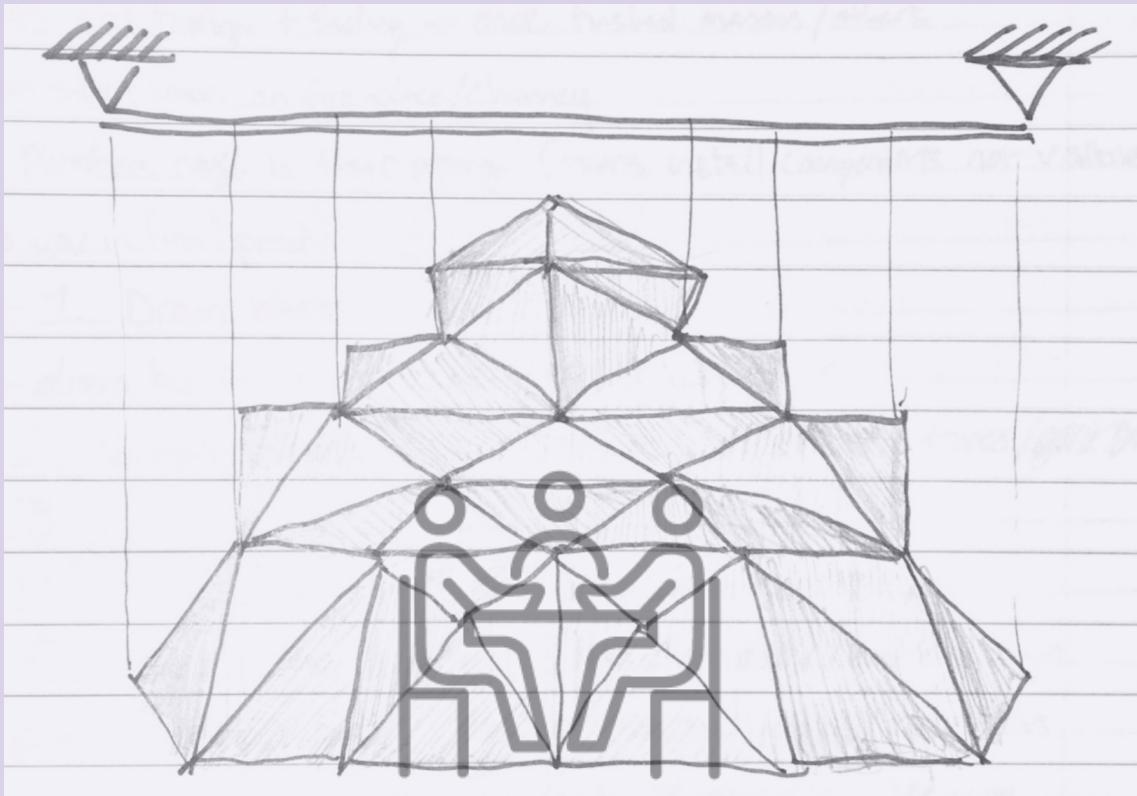
Medium (1-2 occupants)



Large (4-5 occupants)

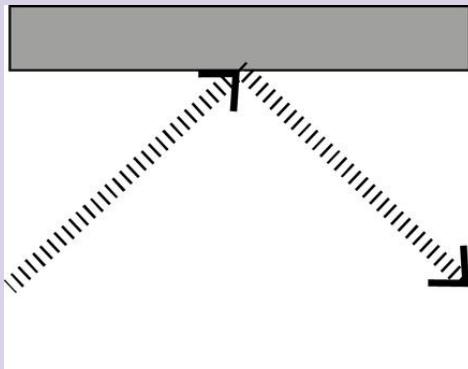


Concept Development

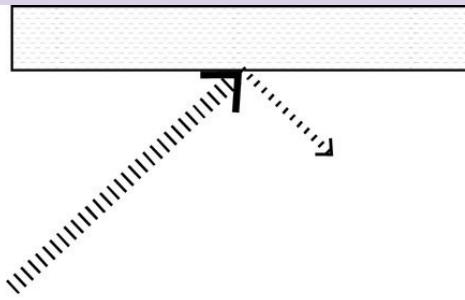




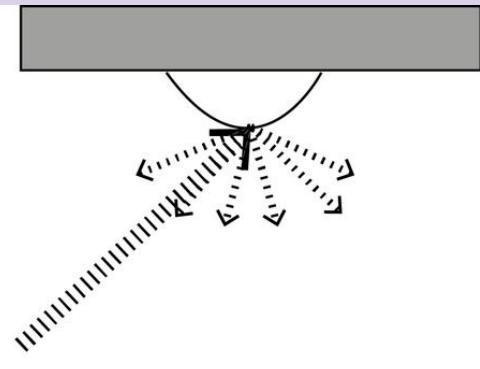
Reflection



Absorption

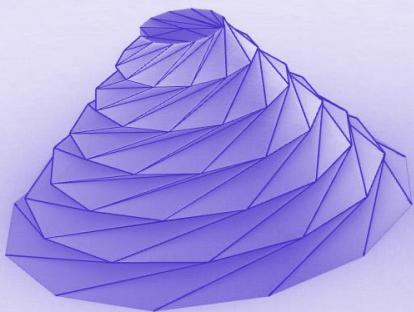


Diffusion

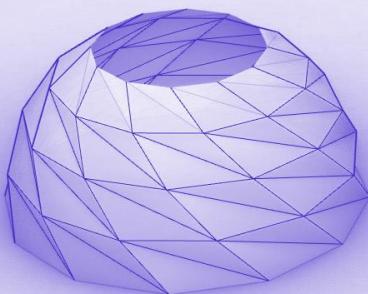




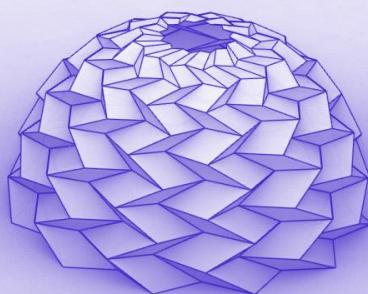
Prototyping



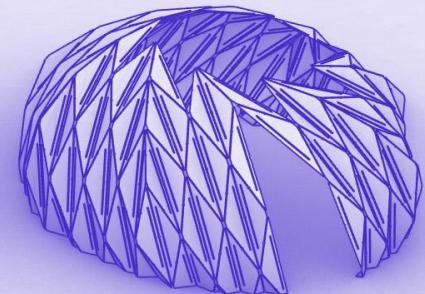
Iteration #1
Spiral Cone



Iteration #2
Twisting Dome

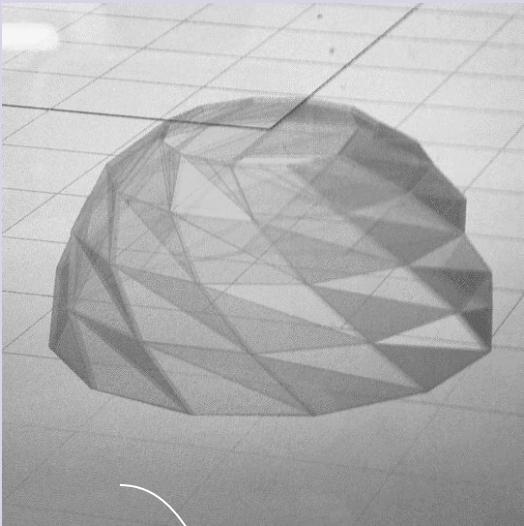


Iteration #3
Compressible Dome

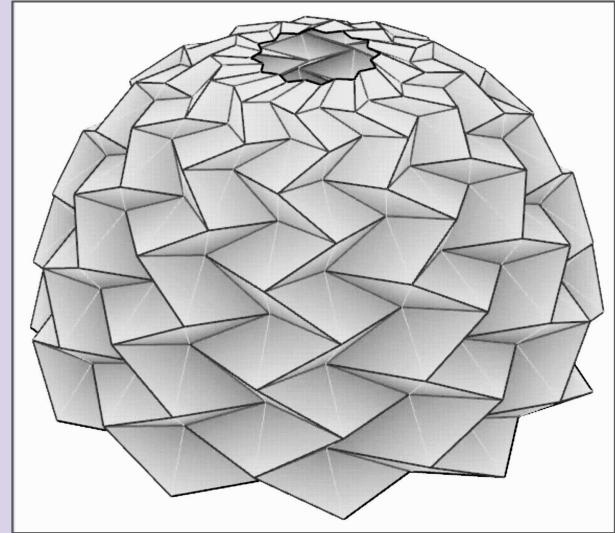
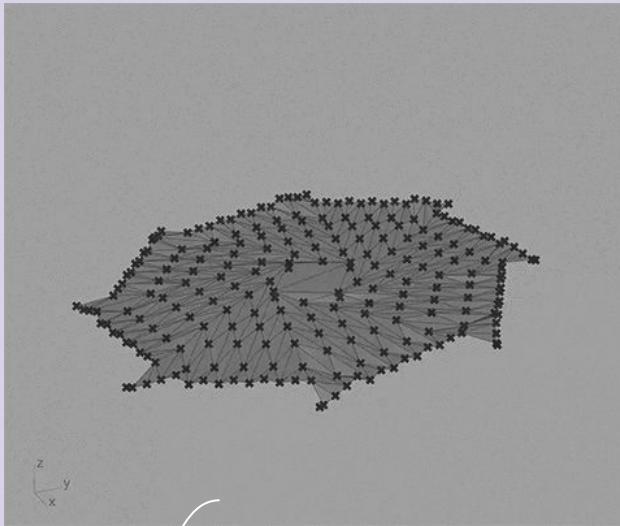


Iteration #4
Isodome

Folding Simulations

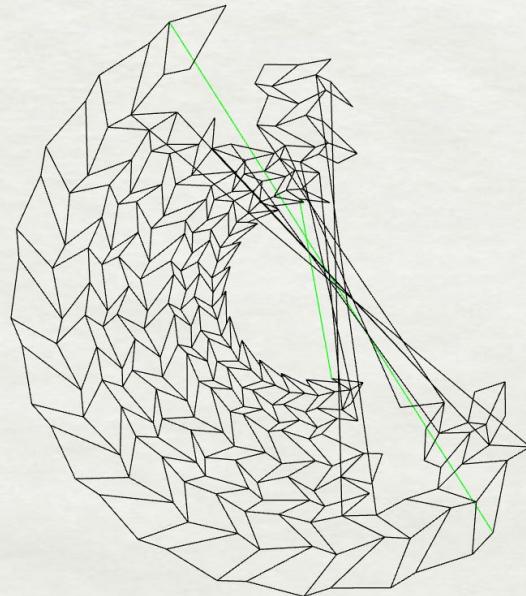


Kangaroo Simulations

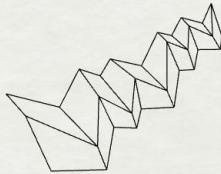


Freeform Origami Simulation

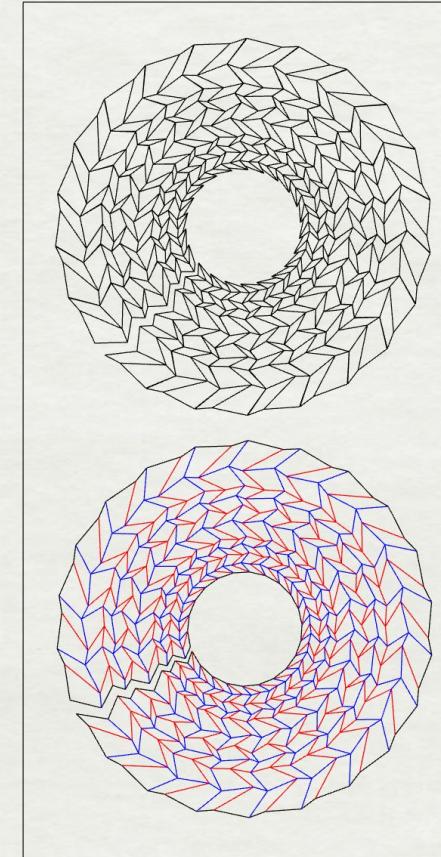
Step 1: Semi-garbage from Freeform Origami



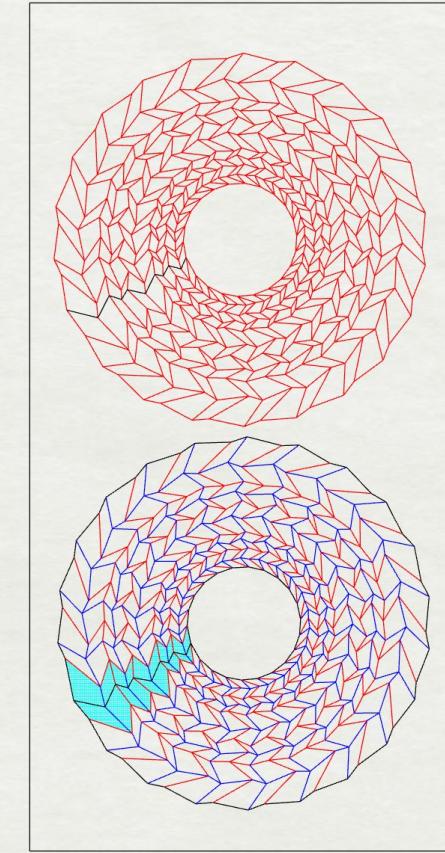
Step 2: CurveBoolean to the rescue



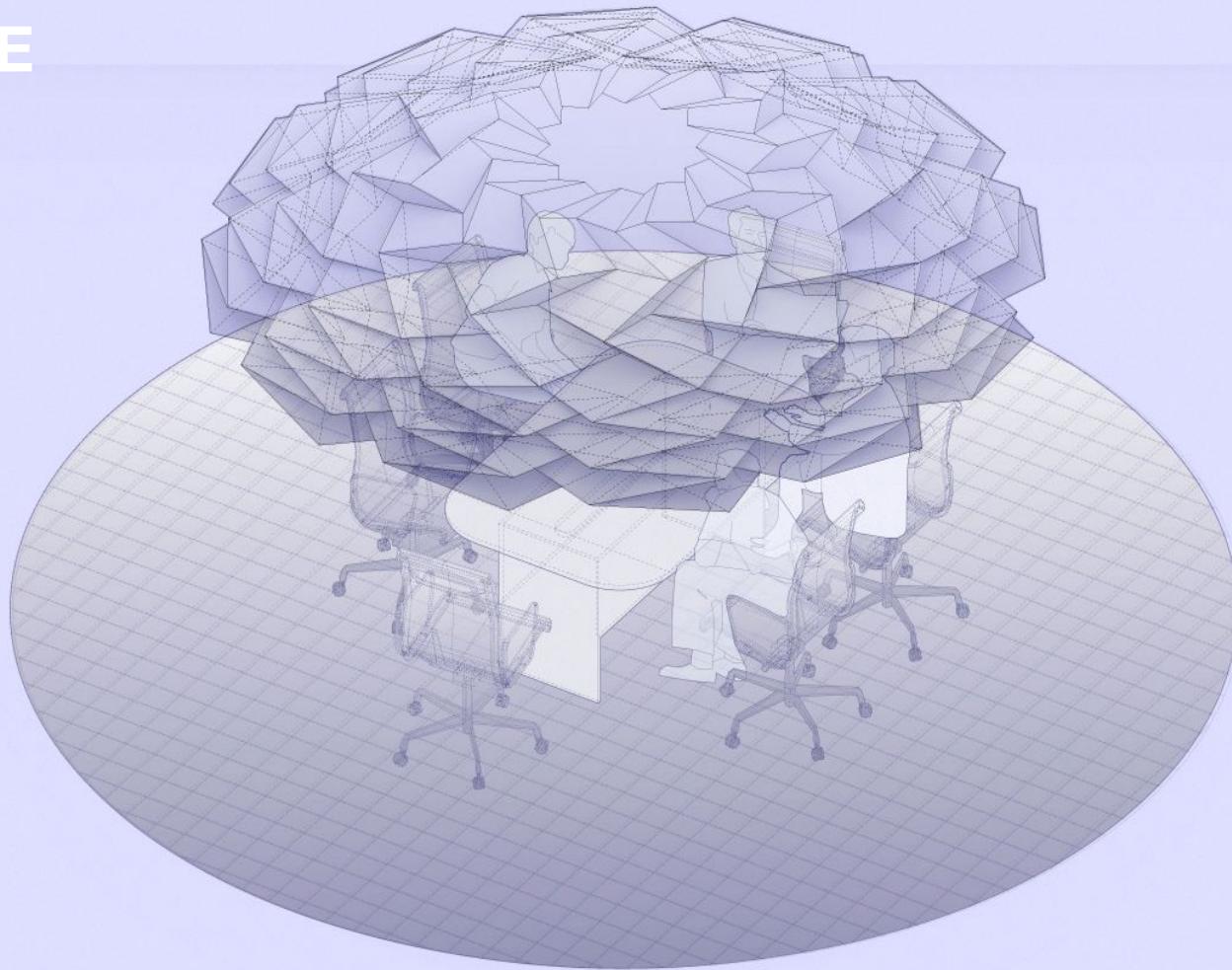
Step 3: Using 'Orient' to copy strip



Step 3a: Using 'Orient' to copy strip



ISODOME



ISODOME



Sample Office Scenario

Position 1:
Becomes light
fixture/ceiling
sculpture when
retracted

Position 2:
Sound blocking
dome when
deployed

Next Steps

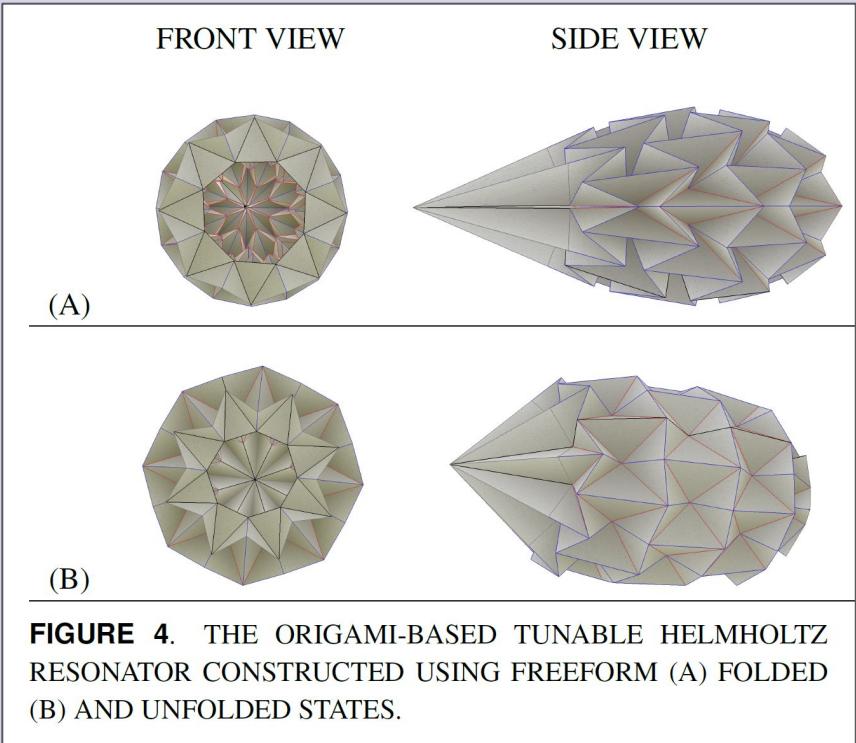


FIGURE 4. THE ORIGAMI-BASED TUNABLE HELMHOLTZ RESONATOR CONSTRUCTED USING FREEFORM (A) FOLDED (B) AND UNFOLDED STATES.

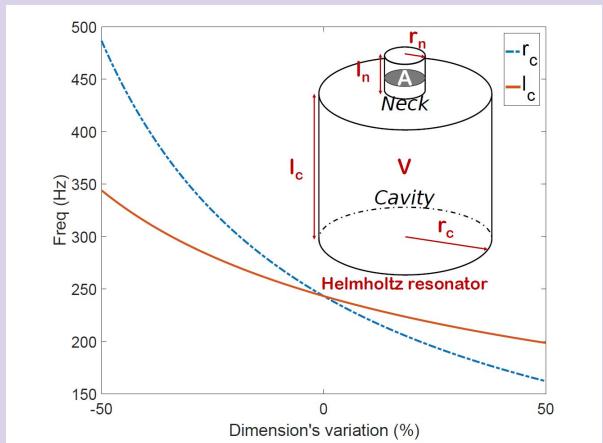


FIGURE 2. COMPARISON BETWEEN THE INFLUENCE OF THE RADIUS AND THE LENGTH OF A CYLINDRICAL CAVITY OF HELMHOLTZ RESONATOR ON ITS THEORETICAL NATURAL FREQUENCY.



